SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: UNITED BIOMEDICAL INC., et al.

(ii) TITLE OF INVENTION: PEPTIDE COMPOSITION AS IMMUNOGEN FOR THE TREATMENT OF ALLERGY

(iii) NUMBER OF SEQUENCES: 91

(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Morgan & Finnegan
(B) STREET: 345 Park Avenue
(C) CITY: New York
(D) STATE: NY
(E) COUNTRY: USA
(F) ZIP: 10154-0053

9A
Sub # 10A

(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: WORD 8.0

(vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER: To be assigned
(B) FILING DATE: 21-JUNE-1999
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US 09/100,287
(B) FILING DATE: 20-JUN-1998
(C) CLASSIFICATION: 514

(viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: MARIA C.H.LIN
(B) REGISTRATION NUMBER: 29,323
(C) REFERENCE/DOCKET NUMBER: 1151-4153PC1

(ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: 212-758-4800
(B) TELEFAX: 212-751-6849

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 325 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:
(A) NAME/KEY: î chain of human IgE

(x) REFERENCE: Dorrington and Bennich, Immunol Rev, 1978, 41:3-25.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

```
Val Cys Ser Arg Asp Phe Thr Pro Pro Thr Val Lys
 1               5                  10
Ile Leu Gln Ser Ser Cys Asp Gly Gly Gly His Phe
            15                  20
Pro Pro Thr Ile Gln Leu Leu Cys Leu Val Ser Gly
        25                  30                  35
Tyr Thr Pro Gly Thr Ile Asn Ile Thr Trp Leu Glu
                40                  45
Asp Gly Gln Val Met Asp Val Asp Leu Ser Thr Ala
    50                  55                  60
Ser Thr Thr Gln Glu Gly Glu Leu Ala Ser Thr Gln
                65                  70
Ser Glu Leu Thr Leu Ser Gln Lys His Trp Leu Ser
            75                  80
Asp Arg Thr Tyr Thr Cys Gln Val Thr Tyr Gln Gly
        85                  90                  95
His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp
                100                 105
```

Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg
110 115 120
Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro
125 130
Thr Ile Thr Cys Leu Val Val Asp Leu Ala Pro Ser
135 140
Lys Gly Thr Val Asn Leu Thr Trp Ser Arg Ala Ser
145 150 155
Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu
160 165
Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr
170 175 180
Leu Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu
185 190
Thr Tyr Gln Cys Arg Val Thr His Pro His Leu Pro
195 200
Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly
205 210 215
Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr
220 225
Pro Glu Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu
230 235 240
Ala Cys Leu Ile Gln Asn Phe Met Pro Glu Asp Ile
245 250
Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro
255 260
Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr
265 270 275
Lys Gly Ser Gly Phe Phe Val Phe Ser Arg Leu Glu
280 285
Val Thr Arg Ala Glu Trp Gln Glu Lys Asp Glu Phe
290 295 300
Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser
305 310
Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly
315 320
Lys
325

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 312 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:
(A) NAME/KEY: î chain of dog IgE

(x) REFERENCE: Patel et al., Immunogenetics, 1995; 41:282-286.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```
Ala Cys Ala Leu Asn Phe Ile Pro Pro Thr Val Lys
 1               5                  10
Leu Phe His Ser Ser Cys Asn Pro Val Gly Asp Thr
            15                  20
His Thr Thr Ile Gln Leu Leu Cys Leu Ile Ser Gly
 25                  30                  35
Tyr Val Pro Gly Asp Met Glu Val Ile Trp Leu Val
             40                  45
Asp Gly Gln Lys Ala Thr Asn Ile Phe Pro Tyr Thr
 50                  55                  60
Ala Pro Gly Thr Lys Glu Gly Asn Val Thr Ser Thr
                 65                  70
His Ser Glu Leu Asn Ile Thr Gln Gly Glu Trp Val
            75                  80
Ser Gln Lys Thr Tyr Thr Cys Gln Gly Phe Thr Phe
 85                  90                  95
Lys Asp Glu Ala Arg Lys Cys Ser Glu Ser Asp Pro
             100                 105
Arg Gly Val Thr Ser Tyr Leu Ser Pro Pro Ser Pro
 110                 115                 120
Leu Asp Leu Tyr Val His Lys Ala Pro Lys Ile Thr
                125                 130
Cys Leu Val Val Asp Leu Ala Thr Met Glu Gly Met
            135                 140
```

```
Asn Leu Thr Trp Tyr Arg Glu Ser Lys Glu Pro Val
145                 150                 155
Asn Pro Gly Pro Leu Asn Lys Lys Asp His Phe Asn
            160                 165
Gly Thr Ile Thr Val Thr Ser Thr Leu Pro Val Asn
    170                 175                 180
Thr Asn Asp Trp Ile Glu Gly Glu Thr Tyr Tyr Cys
                185                 190
Arg Val Thr His Pro His Leu Pro Lys Asp Ile Val
        195                 200
Arg Ser Ile Ala Lys Ala Pro Gly Lys Arg Ala Pro
205                 210                 215
Pro Asp Val Tyr Leu Phe Leu Pro Pro Glu Glu Glu
            220                 225
Gln Gly Thr Lys Asp Arg Val Thr Leu Thr Cys Leu
    230                 235                 240
Ile Gln Asn Phe Phe Pro Ala Asp Ile Ser Val Gln
                245                 250
Trp Leu Arg Asn Asp Ser Pro Ile Gln Thr Asp Gln
        255                 260
Tyr Thr Thr Thr Gly Pro His Lys Val Ser Gly Ser
265                 270                 275
Arg Pro Ala Phe Phe Ile Phe Ser Arg Leu Glu Val
            280                 285
Ser Arg Val Asp Trp Glu Gln Lys Asn Lys Phe Thr
    290                 295                 300
Cys Gln Val Val His Glu Ala Leu Ser Gly Ser Arg
                305                 310
```

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 313 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:
(A) NAME/KEY: î chain of rat IgE

(x) REFERENCE: Steen et al., J Mol Biol, 1984; 177:19-32.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Ala Arg Pro Val Asn Ile Thr Lys Pro Thr Val Asp
1 5 10
Leu Leu His Ser Ser Cys Asp Pro Asn Ala Phe His
15 20
Ser Thr Ile Gln Leu Tyr Cys Phe Val Tyr Gly His
25 30 35
Ile Gln Asn Asp Val Ser Ile His Trp Leu Met Asp
40 45
Asp Arg Lys Ile Tyr Asp Thr His Ala Gln Asn Val
50 55 60
Leu Ile Lys Glu Glu Gly Lys Leu Ala Ser Thr Tyr
65 70
Ser Arg Leu Asn Ile Thr Gln Gln Gln Trp Met Ser
75 80
Glu Ser Thr Phe Thr Cys Lys Val Thr Ser Gln Gly
85 90 95
Glu Asn Tyr Trp Ala His Thr Arg Arg Cys Ser Asp
100 105
Asp Glu Pro Arg Gly Val Ile Thr Tyr Leu Ile Pro
110 115 120
Pro Ser Pro Leu Asp Leu Tyr Glu Asn Gly Thr Pro
125 130
Lys Leu Thr Cys Leu Val Leu Asp Leu Glu Ser Glu
135 140
Glu Asn Ile Thr Val Thr Trp Val Arg Glu Arg Lys
145 150 155
Lys Ser Ile Gly Ser Ala Ser Gln Arg Ser Thr Lys
160 165
His His Asn Ala Thr Thr Ser Ile Thr Ser Ile Leu
170 175 180
Pro Val Asp Ala Lys Asp Trp Ile Glu Gly Glu Gly
185 190

```
Tyr Gln Cys Arg Val Asp His Pro His Phe Pro Lys
        195                 200
Pro Ile Val Arg Ser Ile Thr Lys Ala Leu Gly Leu
205                 210                 215
Arg Ser Ala Pro Glu Val Tyr Val Phe Leu Pro Pro
            220                 225
Glu Glu Glu Glu Lys Asn Lys Arg Thr Leu Thr Cys
    230                 235                 240
Leu Ile Gln Asn Phe Phe Pro Glu Asp Ile Ser Val
                245                 250
Gln Trp Leu Gln Asp Ser Lys Leu Ile Pro Lys Ser
        255                 260
Gln His Ser Thr Thr Thr Pro Leu Lys Thr Asn Gly
265                 270                 275
Ser Asn Gln Arg Phe Phe Ile Phe Ser Arg Leu Glu
            280                 285
Val Thr Lys Ala Leu Trp Thr Gln Thr Lys Gln Phe
    290                 295                 300
Thr Cys Arg Val Ile His Glu Ala Leu Arg Glu Pro
                305                 310
Arg
```

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 313 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:
(A) NAME/KEY: î chain of mouse IgE

(x) REFERENCE: Ishida et al., EMBO, 1982; 1:1117-1123

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

```
Val Arg Pro Val Thr His Ser Leu Ser Pro Pro Trp
 1               5                  10
Ser Tyr Ser Ile His Arg Cys Asp Pro Asn Ala Phe
            15                  20
His Ser Thr Ile Gln Leu Tyr Cys Phe Ile Tyr Gly
        25                  30                  35
His Ile Leu Asn Asp Val Ser Val Ser Trp Leu Met
                    40                  45
Asp Asp Arg Glu Ile Thr Asp Thr Leu Ala Gln Thr
    50                  55                  60
Val Leu Ile Lys Glu Glu Gly Lys Leu Ala Ser Thr
                65                  70
Cys Ser Lys Leu Asn Ile Thr Glu Gln Gln Trp Met
            75                  80
Ser Glu Ser Thr Phe Thr Cys Arg Val Thr Ser Gln
        85                  90                  95
Gly Cys Asp Tyr Leu Ala His Thr Arg Arg Cys Pro
                100                 105
Asp His Glu Pro Arg Gly Ala Ile Thr Tyr Leu Ile
    110                 115                 120
Pro Pro Ser Pro Leu Asp Leu Tyr Gln Asn Gly Ala
                125                 130
Pro Lys Leu Thr Cys Leu Val Val Asp Leu Glu Ser
            135                 140
Glu Lys Asn Val Asn Val Thr Trp Asn Gln Glu Lys
145                 150                 155
Lys Thr Ser Val Ser Ala Ser Gln Trp Tyr Thr Lys
                160                 165
His His Asn Asn Ala Thr Thr Ser Ile Thr Ser Ile
    170                 175                 180
Leu Pro Val Val Ala Lys Asp Trp Ile Glu Gly Tyr
                185                 190
Gly Tyr Gln Cys Ile Val Asp Arg Pro Asp Phe Pro
            195                 200
Lys Pro Ile Val Arg Ser Ile Thr Lys Thr Pro Gly
205                 210                 215
Gln Arg Ser Ala Pro Glu Val Tyr Val Phe Pro Pro
                220                 225
Pro Glu Glu Glu Ser Glu Asp Lys Arg Thr Leu Thr
    230                 235                 240
```

Cys Leu Ile Gln Asn Phe Phe Pro Glu Asp Ile Ser
245 250
Val Gln Trp Leu Gly Asp Gly Lys Leu Ile Ser Asn
255 260
Ser Gln His Ser Thr Thr Thr Pro Leu Lys Ser Asn
265 270 275
Gly Asn Gln Gly Phe Phe Ile Phe Ser Arg Leu Glu
280 285
Val Ala Lys Thr Leu Trp Thr Gln Arg Lys Gln Phe
290 295 300
Thr Cys Gln Val Ile His Glu Ala Leu Gln Lys Pro
305 310
Arg

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro
1 5 10
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys
15 20
Cys
25

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His Pro
1 5 10
His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys
15 20
Cys
25

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Cys Gly Glu Gly Tyr Gln Ser Arg Val Asp His Pro
1 5 10
His Phe Pro Lys Pro Ile Val Arg Ser Ile Thr Lys
15 20
Cys
25

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Cys Gly Tyr Gly Tyr Gln Ser Ile Val Asp Arg Pro
1 5 10
Asp Phe Pro Lys Pro Ile Val Arg Ser Ile Thr Leu
15 20
Cys
25

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr
1 5 10
Ile Ile Thr Thr Ile Asp
15

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1

(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site

(B) LOCATION: 15
(D) OTHER INFORMATION: /note= "Ile, Met or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa
1 5 10
Glu Xaa Xaa
15

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 3
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Gly Or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 17
(D) OTHER INFORMATION: /note= "Ile, Met or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Ile Ser Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa
1 5 10
Xaa Xaa Glu Xaa Xaa Leu Phe
15

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala
1 5 10
Thr Tyr Gln Phe
15

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 45 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr
1 5 10
Ile Ile Thr Thr Ile Asp Gly Gly Cys Gly Glu Thr
15 20

Tyr Gln Ser Arg Val Thr His Pro His Leu Pro Arg
25 30 35
Ala Leu Met Arg Ser Thr Thr Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 63 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala
1 5 10
Thr Tyr Gln Phe Gly Gly Lys Lys Lys Ile Ile Thr
15 20

Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr Ile Asp
25 30 35
Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr
40 45
His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr
50 55 60
Thr Lys Cys

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Pro Pro Xaa Pro Xaa Pro
1 5

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 59 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10
Gly Gly Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile
15 20
Ile Thr Ile Ile Thr Thr Ile Asp Gly Gly Cys Gly
25 30 35
Glu Thr Tyr Gln Ser Arg Val Thr His Pro His Leu
40 45
Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
50 55

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 46 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4

(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: /note= "Gly Or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "His Or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Gly Or Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa
1 5 10

Xaa Ile Glu Xaa Ile Leu Phe Gly Gly Cys Gly Glu
15 20
Thr Tyr Gln Ser Arg Val Thr His Pro His Leu Pro
25 30 35
Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 63 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 21
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 24
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 25
(D) OTHER INFORMATION: /note= "Gly Or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 29
(D) OTHER INFORMATION: /note= "His Or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 30
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 33
(D) OTHER INFORMATION: /note= "Gly Or Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala
1 5 10
Thr Gln Phe Gly Gly Ile Ser Ile Xaa Glu Ile Xaa
15 20
Xaa Val Ile Val Xaa Xaa Ile Glu Xaa Ile Leu Phe
25 30 35
Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr
40 45
His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr
50 55 60
Thr Lys Cys

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 18
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 21
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 22
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 26

(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 27
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 30
(D) OTHER INFORMATION: /note= "Gly or Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10
Gly Gly Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile
15 20
Val Xaa Xaa Ile Glu Xaa Ile Leu Phe Gly Gly Cys
25 30 35
Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His
40 45
Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
50 55 60

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 42 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 15
(D) OTHER INFORMATION: /note= "Ile, Met or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

```
Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa
 1               5                  10
Glu Xaa Xaa Gly Gly Cys Gly Glu Thr Tyr Gln Ser
         15                  20
Arg Val Thr His Pro His Leu Pro Arg Ala Leu Met
 25                  30                  35
Arg Ser Thr Thr Lys Cys
             40
```

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 19
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 20
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 23
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 24
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 28
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 29
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 30
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 32
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 33
(D) OTHER INFORMATION: /note= "Ile, Met or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

```
Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala
 1               5                  10
Thr Tyr Gln Phe Gly Gly Xaa Xaa Glu Ile Xaa Xaa
            15                  20
Val Ile Val Xaa Xaa Xaa Glu Xaa Xaa Gly Gly Cys
 25                  30                  35
Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His
                40                  45
Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
     50                  55                  60
```

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 56 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 15
D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 19
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 20
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 24
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 25
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 26
(D) OTHER INFORMATION: /note= "Ile, Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 28
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 29
(D) OTHER INFORMATION: /note= "Ile, Met, or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10
Gly Gly Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa
15 20
Xaa Xaa Glu Xaa Xaa Gly Gly Cys Gly Glu Thr Tyr
25 30 35
Gln Ser Arg Val Thr His Pro His Leu Pro Arg Ala
40 45
Leu Met Arg Ser Thr Thr Lys Cys
50 55

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 46 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4

(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Gly or Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa
1 5 10

Xaa Ile Glu Xaa Ile Leu Phe Gly Gly Cys Gly Tyr
15 20
Gly Tyr Gln Ser Ile Val Asp His Pro Asp Phe Pro
25 30 35
Lys Pro Ile Val Arg Ser Ile Thr Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 45 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr
1 5 10
Ile Ile Thr Thr Ile Asp Gly Gly Cys Gly Tyr Gly
15 20
Tyr Gln Ser Ile Val Asp His Pro Asp Phe Pro Lys
25 30 35
Pro Ile Val Arg Ser Ile Thr Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 45 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr
1 5 10
Ile Ile Thr Thr Ile Asp Gly Gly Cys Gly Glu Thr
15 20

Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro Lys
25 30 35

Asp Ile Val Arg Ser Ile Ala Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 46 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1
(D) OTHER INFORMATION: /note= "Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site

(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: /note= "Met or Leu"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 17
(D) OTHER INFORMATION: /note= "Met or Val"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Ile Ser Ile Ser Glu Ile Lys Gly Val Ile Val His
1 5 10
Lys Ile Glu Gly Ile Leu Phe Gly Gly Cys Gly Glu
15 20
Thr Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro
25 30 35
Lys Asp Ile Val Arg Ser Ile Ala Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 49 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

```
Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr
 1               5                  10
Leu Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg
            15                  20
Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp Leu
 25                  30                  35

Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
             40                  45
Arg
```

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

```
Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
 1               5                  10
Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu
            15                  20
Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys
 25                  30                  35
Ser Pro Thr Ile Thr Ser Leu Val Val Asp Leu Ala
             40                  45
Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg
 50                  55                  60
```

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 64 amino acids

(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

```
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
 1               5                  10
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
            15                  20
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
        25                  30                  35
Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
                40                  45
Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu
    50                  55                  60
Thr Trp Ser Arg
```

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 76 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

```
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser
 1               5                  10
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
            15                  20
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
        25                  30                  35
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
                40                  45
Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
    50                  55                  60
```

Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu
65 70

Thr Trp Ser Arg
75

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr
1 5 10
Leu Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg
15 20
Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp
25 30 35

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 46 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
1 5 10
Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu
15 20

```
Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys
 25                  30                  35
Ser Pro Thr Ile Thr Ser Leu Val Val Asp
             40                  45
```

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

```
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
  1               5                  10

Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
         15                  20
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
 25                  30                  35
Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
             40                  45
Val Asp
 50
```

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 62 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

```
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser
 1               5                  10
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
            15                  20
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
 25                  30                  35
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
             40                  45
Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
 50                  55                  60
Val Asp
```

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 29 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

```
Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr
 1               5                  10
Leu Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg
            15                  20
Lys Ser Pro Thr Ile
 25
```

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

```
Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
 1               5                  10
Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu
            15                  20
Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys
 25                  30                  35
Ser Pro Thr Ile
             40
```

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 44 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

```
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
 1               5                  10
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
            15                  20
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
 25                  30                  35
Phe Ile Arg Lys Ser Pro Thr Ile
             40
```

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 56 amino acids

(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

```
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser
 1               5                  10
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
            15                  20
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
 25                  30                  35
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
             40                  45
Phe Ile Arg Lys Ser Pro Thr Ile
     50                  55
```

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 76 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

```
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Cys
 1               5                  10
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
            15                  20
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
 25                  30                  35
Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
             40                  45
Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu Val
     50                  55                  60
```

Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu
65 70

Thr Trp Ser Arg
75

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Cys Lys Gln Arg Asn Gly Thr Leu Thr Cys
1 5 10

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 45 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Cys
1 5 10
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser
15 20
Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val
25 30 35
Ser Ala Tyr Leu Ser Arg Pro Ser Pro
40 45

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Cys Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
1 5 10
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg
15 20
Lys Glu Glu Lys Gln Arg Asn Gly Thr Cys
25 30

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Cys Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu
1 5 10
Thr Tyr Gln Cys Arg Val Thr His Pro His Leu Pro
15 20
Arg Ala Leu Met Arg Ser Thr Thr Cys
25 30

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Ser Thr Thr Lys Thr Ser Gly Pro Arg Ala Ala Pro Glu Val
1 5 10

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Cys Trp Ser Arg Ala Ser Gly Lys Pro Val Cys Asn His Ser
1 5 10

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Cys Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg
1 5 10
Lys Ser Pro Thr Ile Thr Cys
15

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Cys Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Pro Cys
1 5 10

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Cys Pro Pro Val Gly Thr Arg Asp Trp Ile Glu Gly
1 5 10
Glu Pro Cys
15

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Cys Lys Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr
1 5 10

Val Thr Ser Cys
15

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Lys Glu Glu Lys Gln Arg Asn Gly
1 5

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Cys Trp Ser Arg Ala Ser Gly Lys Pro Val Cys
1 5 10

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Pro Thr Ile Thr Cys Leu Val Leu Asp Leu Ala Pro
1 5 10
Ser Lys Gly Thr Val Asn Leu Thr Cys
15 20

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Pro Thr Ile Thr Cys Leu Val Leu Asp Leu Ala Pro
1 5 10
Ser Lys Gly Thr
15

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Thr Ser Thr Leu Pro Val Gly Thr Arg Asp Trp Ile
1 5 10
Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
15 20
His
25

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Pro Thr Ile Thr Ser Leu Val Leu Cys Leu Ala Pro
1 5 10
Ser Lys Gly Cys
15

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 amino acids

(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Cys Val Asn Leu Thr Trp Ser Arg Ala Ser Gly Lys
1 5 10
Pro Val Asn His Ser Thr Arg Lys Glu Glu Cys
15 20

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 53 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Cys Thr Trp Ser Arg Ala Ser Gly Lys Pro Val Asn
1 5 10

His Ser Thr Arg Lys Glu Glu Lys Gln Arg Asn Gly
15 20
Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
25 30 35
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg
40 45
Val Thr His Pro His
50

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Lys Thr Lys Gly Ser Gly Phe Phe Val Phe
1 5 10

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: /note= "Ser or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: /note= "Gly or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12

(D) OTHER INFORMATION: /note= "His or Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Lys or Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Gly or Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa
1 5 10
Xaa Ile Glu Xaa Ile Leu Phe
15

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu
1 5 10
Glu Gly Val
15

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Gly Ile Leu Glu Ser Arg Gly Ile Lys Ala Arg Ile
1 5 10
Thr His Val Asp Thr Glu Ser Tyr
15 20

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Lys Lys Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile
1 5 10
Gly Ile Thr Glu Leu
15

(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Lys Lys Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
1 5 10
Arg Val Pro Lys Val Ser Ala Ser His Leu
15 20

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Lys Lys Leu Arg Arg Leu Leu Tyr Met Ile Tyr Met
1 5 10
Ser Gly Leu Ala Val Arg Val His Val Ser Lys Glu
15 20
Glu Gln Tyr Tyr Asp Tyr
25 30

(2) INFORMATION FOR SEQ ID NO:66:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Tyr Asp Pro Asn Tyr Leu Arg Thr Asp Ser Asp Lys
1 5 10

Asp Arg Phe Leu Gln Thr Met Val Lys Leu Phe Asn
15 20
Arg Ile Lys
25

(2) INFORMATION FOR SEQ ID NO:67:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

Gly Ala Tyr Ala Arg Cys Pro Asn Gly Thr Arg Ala
1 5 10
Leu Thr Val Ala Glu Leu Arg Gly Asn Ala Glu Leu
15 20

(2) INFORMATION FOR SEQ ID NO:68:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln
1 5 10
Ser Leu Asp
15

(2) INFORMATION FOR SEQ ID NO:69:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
1 5 10
Tyr Arg Pro Pro Asn Ala Pro Ile Leu
15 20

(2) INFORMATION FOR SEQ ID NO:70:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
1 5 10
Thr Ala Ser Ala Leu Tyr Arg Glu
15 20

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys
1 5 10
Trp Gly Glu Leu Met Thr Leu Ala
15 20

(2) INFORMATION FOR SEQ ID NO:72:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

Trp Val Arg Asp Ile Ile Asp Asp Phe Thr Asn Glu
1 5 10
Ser Ser Gln Lys Thr
15

(2) INFORMATION FOR SEQ ID NO:73:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

Arg Ala Gly Arg Ala Ile Leu His Ile Pro Thr Arg
1 5 10

Ile Arg Gln Gly Leu Glu Arg
15

(2) INFORMATION FOR SEQ ID NO:74:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val
1 5 10

Leu Gln Arg Ala Gly Arg Ala Ile Leu
15 20

(2) INFORMATION FOR SEQ ID NO:75:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

Ala Leu Asn Ile Trp Asp Arg Phe Asp Val Phe Ser
1 5 10
Thr Leu Gly Ala Thr Ser Gly Tyr Leu Lys Gly Asn
15 20
Ser
25

(2) INFORMATION FOR SEQ ID NO:76:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

Asp Ser Glu Thr Ala Asp Asn Leu Glu Lys Thr Val
1 5 10
Ala Ala Leu Ser Ile Leu Pro Gly His Gly
15 20

(2) INFORMATION FOR SEQ ID NO:77:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

Glu Glu Ile Val Ala Gln Ser Ile Ala Leu Ser Ser
1 5 10
Leu Met Val Ala Gln Ala Ile Pro Leu Val Gly Glu
15 20
Leu Val Asp Ile Gly Phe Ala Ala Thr Asn Phe Val
25 30 35
Glu Ser Cys

(2) INFORMATION FOR SEQ ID NO:78:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

Asp Ile Glu Lys Lys Ile Ala Lys Met Glu Lys Ala
1 5 10
Ser Ser Val Phe Asn Val Val Asn Ser
15 20

(2) INFORMATION FOR SEQ ID NO:79:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:

Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp
1 5 10

Glu Lys Ile Arg Ile
15

(2) INFORMATION FOR SEQ ID NO:80:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

Gly Leu Gln Gly Lys Ile Ala Asp Ala Val Lys Ala
1 5 10
Lys Gly

(2) INFORMATION FOR SEQ ID NO:81:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

Gly Leu Ala Ala Gly Leu Val Gly Met Ala Ala Asp
1 5 10
Ala Met Val Glu Asp Val Asn
15

(2) INFORMATION FOR SEQ ID NO:82:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Ser Thr Glu Thr Gly Asn Gln His His Tyr Gln Thr
1 5 10
Arg Val Val Ser Asn Ala Asn Lys
15 20

(2) INFORMATION FOR SEQ ID NO:83:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

Cys Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser
1 5 10
Pro Thr Cys
15

(2) INFORMATION FOR SEQ ID NO:84:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Cys Gly Glu Thr Tyr Lys Ser Thr Val Ser His Pro
1 5 10
Asp Leu Pro Arg Glu Val Val Arg Ser Ile Ala Lys
15 20
Cys
25

(2) INFORMATION FOR SEQ ID NO:85:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 18
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 21
(D) OTHER INFORMATION: /note= "Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 22
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 26
(D) OTHER INFORMATION: /note= "Thr"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 27
(D) OTHER INFORMATION: /note= "Arg"

(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 30
(D) OTHER INFORMATION: /note= "Thr"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10

```
Gly Gly Ile Ser Ile Ser Glu Ile Lys Gly Val Ile
          15                  20
Val His Lys Ile Glu Gly Ile Leu Phe Gly Gly Cys
 25                  30                  35
Gly Gly Thr Tyr Gln Ser Arg Val Thr His Pro His
             40                  45
Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
  50                  55                  60
```

(2) INFORMATION FOR SEQ ID NO:86:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

```
Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp
 1               5                  10
Glu Lys Ile Arg Ile
          15
```

(2) INFORMATION FOR SEQ ID NO:87:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 62 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

```
Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp
 1               5                  10
Glu Lys Ile Arg Ile Lys Lys Lys Lys Ile Ile Thr
          15                  20
```

```
Ile Thr Arg Ile Ile Thr Ile Ile Thr Yhr Ile Asp
 25                  30                  35
Lys Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His
             40                  45
Pro His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala
     50                  55                  60
Lys Cys
```

(2) INFORMATION FOR SEQ ID NO:88:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 57 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:

```
Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
 1               5                  10
Lys Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile
         15                  20
Thr Ile Ile Thr Tyr Ile Asp Lys Cys Gly Glu Thr
25                  30                  35
Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro Lys
             40                  45
Asp Ile Val Arg Ser Ile Ala Lys Cys
     50                  55
```

(2) INFORMATION FOR SEQ ID NO:89:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

Ile Ser Leu Thr Glu Ile Arg Thr Val Ile Val Thr
1 5 10
Arg Leu Glu Thr Val Leu Phe
15

(2) INFORMATION FOR SEQ ID NO:90:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 45 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

Ile Ser Leu Thr Glu Ile Arg Thr Val Ile Val Thr
1 5 10
Arg Leu Glu Thr Val Leu Phe □Lys Cys Gly Glu Thr
15 20
Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro Lys
25 30 35
Asp Ile Val Arg Ser Ile Ala Lys Cys
40 45

(2) INFORMATION FOR SEQ ID NO:91:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 63 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:91:

Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp
1 5 10
Glu Lys Ile Arg Ile □Lys Ile Ser Leu Thr Glu Ile
15 20
Arg Thr Val Ile Val Thr Arg Leu Glu Thr Val Leu
25 30 35
Phe □Lys Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr
40 45
His Pro His Leu Pro Lys Asp Ile Val Arg Ser Ile
50 55
Ala Lys Cys
60